

REMARKS

Applicants Examiner's acceptance of the drawings should be based upon the drawings submitted September 03, 2003 regarding Figures 1 and 2. A substitute sheet with Figure 1 designated as "PRIOR ART" was provided. Applicants presume that the drawings are now acceptable.

Claim Disposition

Claims 1 - 33 are pending. Claims 2, 3, 4, 6 - 10, 12, 14 - 19, 21, 23 - 27, 29, and 31-33 stand rejected. Claims 3, 5, 11, 13, 20, 22, 28, and 30 are objected to. The explanation provided in the Office Action states that: "Claims 3, 5, 11, 13, 20, 22, 28, and 30 would be allowable if rewritten in independent form including the limitations of the base claim and any intervening claims from which they depend.

Claim Rejections - 35 U.S.C. §102(b)

Claims 1, 2, 4, 6-10, 12, 14-19, 21, 23-27, 29, and 31-33 stand rejected under 35 U.S.C. §102(b) as being anticipated by Naidu (U.S. Patent No. 6,362,586), hereinafter denoted as Naidu '586.

With regard to Claims 1, 9, 18, and 26, the explanation in the Office Action suggests that Naidu '586 discloses:

"Naidu discloses a method of determining a current in an electric machine coupled to a polyphase bus, the method comprising detecting a rotational position of the electric machine with a position encoder coupled to the electric machine (Column 1, lines 39 - 64); controlling an inverter comprising a plurality of switching devices, the inverter having an input coupled to a direct current bus, and an output coupled to the polyphase bus, the inverter responsive to commands from a controller coupled to the inverter and to the position encoder (Column 1, lines 47 - 57); measuring a current from the direct current bus (Column 2 lines 21 - 33); and capturing the current at a predefined interval of time (Column 2, lines 31 - 36; Column 4, lines 34 - 47)."

Applicants respectfully contend that the explanation in the Office Action mischaracterizes the teachings of Collier-Hallman '226. To anticipate a claim under 35 U.S.C. §102, a single source must contain all of the elements of the claim.

Lewmar Marine Inc. v. Barient, Inc., 827 F.2d 744, 747, 3 U.S.P.Q.2d 1766, 1768

(Fed. Cir. 1987), cert. denied, 484 U.S. 1007 (1988). Moreover, the single source must disclose all of the claimed elements "arranged as in the claim." Structural Rubber Prods. Co. v. Park Rubber Co., 749 F.2d 707, 716, 223 U.S.P.Q. 1264, 1271 (Fed. Cir. 1984). Missing elements may not be supplied by the knowledge of one skilled in the art or the disclosure of another reference. Titanium Metals Corp. v. Banner, 778 F.2d 775, 780, 227 U.S.P.Q. 773, 777 (Fed. Cir. 1985).

With regard to Claims 1, 9, 18, and 26, Applicants respectfully contend that Naidu '586 does not teach or disclose each element of the invention "arranged as in the claim". Specifically, Naidu '586 does not teach or disclose, "A method of determining a current in an electric machine coupled to a polyphase bus." In addition, Naidu '586 does not teach or disclose, "measuring a current *from said direct current bus*; and/or "capturing said current at a predefined interval of time". While Naidu '586 does include current sensing, it specifically teaches that the current measured is the "sensed phase currents" (see Col. 2 line 34-36, Col. 4, lines 42 - 47. In other words, Naidu '586 specifically teaches sensing and measuring the phase currents, not the current of the direct current bus. Therefore, because Naidu '586 does not teach or disclose an element of the claimed invention it cannot anticipate Applicants' Claims. Thus, Claims 1, 9, 18, and 26 are allowable, the rejections are improper and they should be withdrawn.

Moreover, in view of the above discussion, Claims 2, 4, 6 - 8, 10, 12, 14 - 17, 19, 21, 23 - 25, and 27, 29, 31 - 33 depend from Claims 1, 9, 18, and 26 respectively, whether directly or indirectly, and include all of the corresponding limitations thereof. Claims 1, 9, 18, and 26 are not taught by Naidu '586, therefore, Claims 2, 4, 6 - 8, 10, 12, 14 - 17, 19, 21, 23 - 25, and 27, 29, 31 - 33 cannot be taught by Naidu '586 either. Thus, Claims 2, 4, 6 - 8, 10, 12, 14 - 17, 19, 21, 23 - 25, and 27, 29, 31 - 33 are allowable, the rejections are improper and they should be withdrawn.

With regard to Claims 4, 12, 21, and 29, the explanation in the Office action suggests that:

"Naidu discloses the method described above further comprising determining a value representative of a torque current from the current (Abstract; Fig. 2, element 102; Column 8, lines 16 - 46)."

With regard to Claims 4, 12, 21, and 29, Applicants respectfully contend that Naidu '586 does not teach or disclose each element of the invention "arranged as in the claim". Specifically, Applicants respectfully contend that the explanation in the Office Action mischaracterizes the teachings of Naidu '586. Naidu '586 does not teach or disclose, that the torque current is based on "said current" wherein in this instance "said current corresponds to the measured dc current. The torque current in Naidu '586 may be based on the measured currents therein. However, as presented above, those currents are phase currents not the current in the direct current bus as claimed by the Applicants. Therefore, because Naidu '586 does not teach or disclose an element of the claimed invention it cannot anticipate Applicants' Claims. Thus, Claims 4, 12, 21, and 29 are allowable, the rejections are improper and they should be withdrawn.

With regard to Claims 7, 15, 24, and 32, the explanation in the Office action states that:

Collier-Hallman et al. disclose a method comprising all of the elements described above, wherein the electric machine is a permanent magnet DC brushless motor characterized by a sinusoidal magnetic field excitation, wherein it is inherent that a multiplicity of brushless motors are characterized by a sinusoidal magnetic field excitation (Column 1, lines 12-27).

With regard to Claims 8, 17, 25, 33, the explanation in the Office action suggests that:

"Naidu discloses the method described above wherein the capturing is characterized by sampling a signal value representative of the current and the sampling is controlled by the controller to be operative only at the predefined interval of time (Column 2, lines 31 - 36; Column 4, lines 34 - 47)."

With regard to Claims 8, 17, 25, 33, Applicants respectfully contend that Naidu '586 does not teach or disclose each element of the invention "arranged as in the claim". Specifically, Naidu '586 does not teach or disclose, "... sampling is controlled by the controller to be operative only at the predefined interval of time." Applicants respectfully contend that the portions of Naidu '586 relied upon

i.e., Column 2, lines 31-36 and Column 4, lines 34-47, do not teach or disclose sampling...operative only at the predefined interval of time. Specifically, at Column 2, lines 31-36 the disclosure in Naidu '586 is relative to "vector control" modulation technique, which is not at all indicative of how and when the current is sampled. Moreover, at "Column 4, lines 34-47 the disclosure is directed to formation of command variables associated with generation the motor current commands. Once again, there is no disclosure directed to the sampling of the dc bus current. Therefore, because Naidu '586 does not teach or disclose an element of the claimed invention it cannot anticipate Applicants' Claims. Thus, Claims 8, 17, 25, 33 are allowable, the rejections are improper and they should be withdrawn.

Claim Rejections - 35 USC § 103

Claims 7, 15, 24 and 32 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Naidu in view of Su U.S. Patent No. 6,577,087, hereinafter denoted as Su '087. The explanation in the Office action suggests that:

"Naidu discloses the method of Claim 1 wherein the electric machine is a permanent magnet motor characterized by a sinusoidal magnetic field excitation (Column 3, lines 50 - 67). The reference fails to teach using a DC brushless motor, however, Naidu does teach using a permanent magnet, synchronous, alternating-current motor."

"Su (US-6,557,087) discloses a control system for motors that is used on multiple types of motors, including brushless DC motors and synchronous AC motors (Column 1, lines 8 - 52) Accordingly, it would have been obvious to one of ordinary skill in that art at the time of the invention to modify the control system disclosed by Naidu by using it to control a DC brushless motor as disclosed by Su, for the purpose of implementing a low cost drive system (Column 1, lines 26 - 33)."

Applicant respectfully disagrees. For an obviousness rejection to be proper, the Examiner must meet the burden of establishing a *prima facie* case of obviousness. *In re Fine*, U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988). The Examiner must meet the burden of establishing that all elements of the invention are disclosed in the prior art; that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combined references; and that the proposed modification of the prior art must have had a reasonable expectation of success, determined from the vantage point of the

skilled artisan at the time the invention was made. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d, 1016, 1023 (Fed. Cir. 1996).

With regard to Claims 7, 15, 24, and 32, Applicants respectfully contend that neither Naidu '586 nor Su '087, whether alone or in combination disclose or teach each element of the invention. Specifically, neither Naidu '586 nor Su '087 teach or disclose, "measuring a current *from said direct current bus*; and/or "capturing said current at a predefined interval of time" as argued for Claim 1 et al. above. Therefore, because neither Naidu '586 nor Su '087, whether alone or in combination, teach or disclose an element of the claimed invention it cannot anticipate Applicants' Claims. Thus, Claims 7, 15, 24, and 32 are allowable, the rejections are improper and they should be withdrawn.

The arguments here presented are made for the purposes of better defining the invention, rather than to overcome the rejections for patentability. The claims were not amended to overcome the prior art and therefore, no presumption should attach that either the claims have been narrowed over those earlier presented, or that subject matter or equivalents thereof to which the Applicants are entitled has been surrendered.


It is believed that the foregoing remarks are fully responsive to the Office Action and that the claims herein should now be allowable to the Applicants. In the event the Examiner has any queries regarding the instantly submitted response, the courtesy of a telephone conference to discuss any matters in need of attention is respectfully requested.

If there are any additional charges with respect to this Response or otherwise, please charge them to Deposit Account No. 06-1130.

Respectfully Submitted,

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